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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/453,158	12/01/1999	V. PISETSKI	TR01-P04	2232

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EXAMINER

TAYLOR, VICTOR J

ART UNIT

PAPER NUMBER

2862

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/453,158	PISSETSKI ET AL.
	Examiner	Art Unit
	Victor J Taylor	2862

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 01 December 1999.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-8 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: *Office Action*.

DETAILED ACTION

Drawings

1. Figures 1/6 to 6/6 are prior art to US 6,028,820 and US 5,796,678 and should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to because of incorrect page numbers. Figures 1-3, 4a, and 4b are numbered pages 1/6 to 6/6 for drawing pages 1 to 6, followed by unnumbered page 7, which is figure 6, and page 8 for figure 7 and page 9 for figure 8. The brief description of the drawings in the specification details figure 1-3, figure 4a, figure 4b, and figure 5 to 8. A total of nine drawings. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. New formal drawings are required in this application because of objection by the draft person under 37 CFR 1.84, or 1.152 for numerous informalities found in the USPTO form 948 attached to paper 4. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the claimed processing steps in a flow chart or processing diagram.

The steps to determine a first vector V_x , and to determine a second vector V_y , and extrapolating the velocity vectors with the steps of picking, and calculating a set of amplitudes and frequencies, with the steps to determine, and identifying pressure gradients described in the specification is not clearly shown in the drawing or figure 8.

These processing steps must be clearly shown in a new drawing, flow chart or similar drawing and the necessary corrections made to the specification.

No new subject matter may be introduced.

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The abstract of the disclosure is objected to because it is too long under the new rules. It must be one paragraph. Correction is required. See MPEP § 608.01(b).

6. The disclosure is objected to because of the following informalities. The brief description of the drawings detail figures 1-3, 4a, 4b, and 5. These drawings are prior art to US 6,028,820, and US 5,796,678 and should be labeled as Prior Art in the specification. Appropriate correction is required.

Information Disclosure Statement

7. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner on form PTO-892 has cited the references, they have not been considered. The applicant cites publications by J. D. Byerlee in the specification in line 17 on page 2, and cites a reference by M. A. Biot in a textbook in line 15 on page 3. The applicant provided no IDS or copies of these publications. A proper executed IDS with copies of the required publications to determine related subject material is requested by the examiner.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper time wise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Torrington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1-8 are rejected under the judicially created doctrine of double patenting over claim 1 of U. S. Patent No. 6,028,820 and claim 1 of U. S. Patent No. 5,796,678 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows:

Claim 1 of US 5, 796,678, and claim 1 of US 6,028,820 cite the following subject matter.

- a) Picking a first selected horizon from said seismic image.
- b) Calculating a set of instantaneous amplitudes and frequencies for said first selected horizon.
- c) Determining the average amplitude and frequency of said set of instantaneous amplitudes and frequencies;
- d) Identifying pressure gradients associated with said instantaneous amplitudes and frequencies to generate a pressure gradient map, said pressure gradients corresponding to points at which said instantaneous amplitudes and frequencies vary from said average amplitude and frequency, wherein points at which said instantaneous amplitudes and frequencies are less than said average amplitude and frequency correspond to locations of relative low pressure.

Claim 2 of the instant application combined with claim 1 of the instant application cites the same subject matter described above and as found in U. S. Patent No. 6,028,820, and U. S. Patent No. 5,796,678.

Claim 4 dependent on claim 3 of the instant application, and cites the identical equation subject matter of U. S. Patent No. 6,028,820 and as found in claim 6

Claim 3 of the instant application cites the limitation, "wherein said first selected horizon has associated travel times, and wherein said instantaneous amplitudes and frequencies are calculated by the Hilbert Transformation using said travel times." This limitation when combined with the instant application limitations of claim 2 described above duplicates the claim limitations of claim 1, claim 2 and claim 3 as found in U. S Application No. 6,028,820.

Claims 5-8 are multiple dependent claims based on rejected base claims.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) The invention was described in-

(1) An application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) A patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

11. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Watts III in US 6,108,608.

With regard to claim 1, Watts III discloses a method for estimating the properties one of which is determining the location of a multi component fluid in a subterranean formation 18 in figure 1 by using pseudo components as found in lines 15-25 column 3.

Watts III discloses the limitation of determining a first velocity vector V_x with attributes of speed and direction of flow, and discloses this limitation as one or more pseudo components in line 23 and defining an ordered set of vectors corresponding to a characteristic of the base vectors, and teaches a subset of vectors in lines 25-33 of column 3.

Watts III further discloses the limitation of determining a second velocity vector V_y for migration of fluid in the zone 18 in figure 1 as the plurality of component vector matrix in equation 1 and 2, and discloses the intermediate vectors in line 40 columns 9.

Watts III further discloses the limitation of extrapolating the velocity vectors 15 to identify the fluid accumulation 18 in figure 1 and as an order set of vectors in lines 30-45 of column 27 combined with the tables found in column 21 and 22 lines 1-66.

As to claim 2, Watts III further discloses the limitation of picking, calculating and determining the amplitude and frequencies as the estimating steps for defining and selecting a subset and set of vectors in lines 15-60 of column 3.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts III in U. S. 6,108,608.

As to claim 3, Watts III further discloses the limitation of equations derived by mathematical techniques in line 28 of column 5 and discloses a selection of different mathematical models in line 58 and discloses multiple mathematical models in lines 45 to 65 of column 7. The selection of the Hilbert Transform is designer's choice from several models commonly found in the arts. Watts III does not mention specifically the term Hilbert Transformation.

As to claim 4, Watts III further discloses the limitation of calculation vectors using the equation found in line 60 of column 10. He does not disclose the exact equation as cited in the claim limitation.

As to claim 5, Watts III further discloses the limitation of approximated linear combination of vectors using equation 8 in line 35 of column 11. He does not disclose the exact equation as cited in the claim limitation.

As to claim 6, Watts III further discloses the limitation of calculations for the cubic equation for the fluid represented by the two scalars X and Y using the cubic equation 20 in line 10-45 of column 13. He does not show the exact permeability equation on partial derivatives using "r" as the scalar.

As to claim 7, Watts III further discloses the limitation of obtaining geological data as the characteristics of base components in line 27 of column 3 in the region of interest 18 in figure 1.

As to claim 8, Watts III further discloses the limitation of matching physical parameters by matching data in line 45 of column 4 using the equations in lines 15-40 of column 13. He does not disclose the exact equations cited in the limitations.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rahon et al., US 6,038,389 is cited for the method of modeling in a material environment.

Lailly et al., US 2001/0051854 A1 is cited for the 3-D prestack seismic data migration method.

Vienot et al., US 5,835,882 is cited for the method of determining barriers to reservoir flow.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor J Taylor whose telephone number is 703-305-4470. The examiner can normally be reached on Days 9AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Edward Lefkowitz can be reached on 703-305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-5841 for After Final communications.

Art Unit: 2862

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.



Victor J Taylor
Examiner
Art Unit 2862

January 14, 2002



EDWARD LEPKOWITZ
PRIMARY EXAMINER